UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,970	06/27/2003	Giridhari L. Agrawal	4825-09	7432

7590 05/30/2007

Wm. Tucker Griffith
McCormick, Paulding & Huber LLP
CityPlace II
185 Asylum Street
Hartford, CT 06103

EXAMINER	
KRAUSE, JUSTIN MITCHELL	
ART UNIT	PAPER NUMBER
3682	

MAIL DATE	DELIVERY MODE
05/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/608,970	AGRAWAL, GIRIDHARI L.	
	Examiner	Art Unit	
	Justin Krause	3682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,8,9,11-15,17,18 and 23-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,8,9,11-15,17,18 and 23-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 1, 2, 8, 11, 12-15 and 25-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Saville et al (US Patent 6,224,263) in view of Gu (US Patent 4,682,900).

Saville discloses a thrust foil bearing having a thrust bearing plate (14) with a plurality of foils (16) disposed on the surface of the thrust bearing plate, a spring plate (22) operatively engaging the thrust bearing plate, a plurality of springs (23), the thrust bearing plate includes a plurality of decoupled bearing segments defined in part by a plurality of generally radially extending lines of weakness (18) dispersed about the thrust bearing plate, the decoupled bearing segments being circumferentially arranged about the thrust bearing plate.

Saville further discloses that the lines of weakness may be other configurations as disclosed in US Patent 4,624,583, incorporated by reference into the '263 Patent, (See col 3, line 39), including but not limited to slits (fig 6), slots (fig 4), perforations (fig 10), grooves (Fig 8). The lines of weakness being etched lines is a product by process limitation (see MPEP 2113), Saville discloses a variety of forms that are capable

of being formed by etching including the slits, slots, perforations and grooves previously mentioned.

Each bearing segment includes at least one foil.

The thrust bearing plate and spring plates are annular plates each having an inner and outer diameter.

The lines of weakness extend from the inner diameter (see fig 8).

Saville does not disclose a flat thrust plate.

Gu teaches that individual foils may be mounted on a flat thrust plate, or alternatively may be unitary or integral with the thrust plate (col 2, lines 47-52) to serve the same purpose, providing improved operation under extreme load conditions and accommodating eccentricity of the relatively movable elements and further provide a damping effect (Col 1, lines 22-27).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Saville to include a flat thrust plate with individual foils mounted thereon, for the desired purpose of providing improved operation under extreme load conditions and accommodating eccentricity of the relatively movable elements and further provide a damping effect as taught by Gu.

Regarding claims 13-15, Saville does not explicitly disclose the lines of weakness extending from the outer diameter, or both the inner and outer diameters, wherein the lines of weakness are circumaxially dispersed about the thrust bearing plate in a sequenced manner.

Saville does state that the slots "need not be of the same configuration, and can be varied from one to another." (Col 3, lines 39-41)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the lines of weakness extend from the outside diameter, or from both the outside and inside diameter, within the scope of the disclosed invention and still provide the same function of the slots as disclosed, allowing unrestricted airflow through the bearing plate.

Claims 9 and 17,18, 23, and 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saville et al (US Patent 6,244,263) in view of Gu as applied to claim 1 above, and further in view of Heshmat (US Patent 5,833,369).

Heshmat teaches a spring plate with a plurality of decoupled bearing segments (fig 7) defined in part by lines of weakness (92) circumaxially dispersed about the spring plate for the purpose of improving compliance and to enable the bearing to accommodate excursions of the thrust runner (Col 7, lines 1-4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the spring plate of Heshmat into the device of Saville, the motivation would have been to improve compliance and to enable the bearing to accommodate excursions of the thrust runner.

Heshmat discloses the lines of weakness to extend from both the inner and outer diameter of the spring plate.

Response to Arguments

Applicant's arguments with respect to claims 1, 2, 8, 9, 11-15, 17, 18, and 23-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Krause whose telephone number is 571-272-3012. The examiner can normally be reached on Monday - Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK 5/15/07

Thomas R. Hannon
Primary Examiner